

Exploring the Frozen Frontiers: A Polar Regions Assessment

Learning objective: To demonstrate geographical understanding of the Arctic and Antarctic regions, including their climate, physical characteristics, and the challenges of human activity.

Read each question carefully. Use your knowledge of Polar regions to provide detailed answers. Ensure you use geographical vocabulary where appropriate.

Finn the dolphin has been mapping the icy waters near the Earth's poles. He has observed that while both the Arctic and the Antarctic are frozen, their environments are quite different. The Arctic is an ocean surrounded by land, whereas the Antarctic is a continent surrounded by an ocean. Both regions are vital to the Earth's climate, yet they face increasing pressure from rising global temperatures.

Word bank: Arctic · Antarctic · glacier · permafrost · tundra · latitude · hemisphere · iceberg · climate · conservation

1. Identify one major geographical difference between the Arctic and the Antarctic. (2 marks) (2 marks)

2. Define the term 'permafrost' and explain why it is vital to the Arctic ecosystem. (2 marks) (2 marks)

3. Why are the Polar regions often referred to as the 'Earth's air conditioner'? (3 marks) (3 marks)

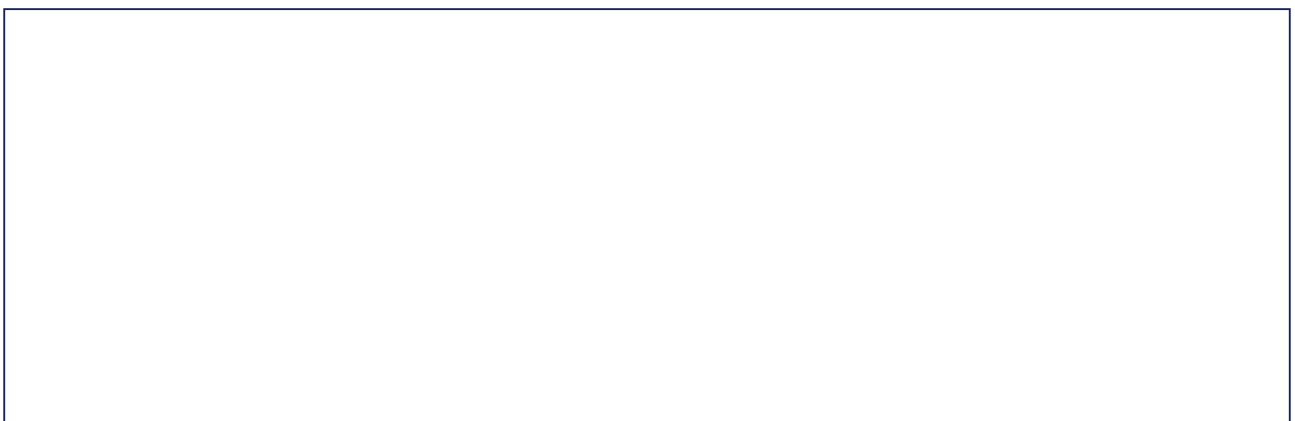
4. Compare the impact of human activity in the Arctic versus the Antarctic. Why is the Antarctic protected by international treaty? (4 marks) (4 marks)

5. Explain why many animals in the Arctic have thick layers of blubber or fur. How does this adaptation assist their survival? (3 marks) (3 marks)

6. What might happen to global sea levels if polar ice sheets continue to melt at an accelerated rate? Justify your reasoning. (3 marks) (3 marks)

7. Extended Writing: Imagine you are a researcher joining Nova the owl on an expedition to the Antarctic. Write a diary entry describing the environmental challenges researchers face and why it is important to preserve these fragile habitats. (8 marks) (8 marks)

Draw: Draw and label a diagram showing the difference between an iceberg and a glacier, including the water line.



Extension challenge: Greater Depth Challenge: If you were tasked with designing a new, sustainable research station for the Antarctic, what specific features would you include to protect the local environment? Explain your choices. Total: /25